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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/005,764	11/02/2001	Joseph S. Cavallo	10559/689001/P13297	7400
20985	7590	12/14/2004	EXAMINER	
FISH & RICHARDSON, PC 12390 EL CAMINO REAL SAN DIEGO, CA 92130-2081			ELMORE, REBA I	
			ART UNIT	PAPER NUMBER
			2187	

DATE MAILED: 12/14/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

## Office Action Summary

**Application No.**

10/005,764

**Applicant(s)**

CAVALLO ET AL.

**Examiner**

Reba I. Elmore

**Art Unit**

2187

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --  
**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on 02 November 2001.  
2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.  
3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 1-26 is/are pending in the application.  
4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.  
5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.  
6) ☒ Claim(s) 1-26 is/are rejected.  
7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.  
8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.  
10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).  
11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).  
a) ☐ All b) ☐ Some \* c) ☐ None of:  
1. ☐ Certified copies of the priority documents have been received.  
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.  
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)  
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)  
3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)  
Paper No(s)/Mail Date \_\_\_\_\_.  
4) ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date. \_\_\_\_\_.  
5) ☐ Notice of Informal Patent Application (PTO-152)  
6) ☐ Other: \_\_\_\_\_.

## **DETAILED ACTION**

1. Claims 1-26 are presented for examination.

### ***Specification***

2. The title of the invention is not descriptive. A new title is required that is clearly indicative of the invention to which the claims are directed.
3. The specification has not been checked to the extent necessary to determine the presence of all possible minor errors. Applicant's cooperation is requested in correcting any errors of which applicant may become aware in the specification.

### ***35 USC § 101***

4. 35 U.S.C. 101 reads as follows:

Whoever invents or discovers any new and useful process, machine, manufacture, or composition of matter, or any new and useful improvement thereof, may obtain a patent therefor, subject to the conditions and requirements of this title.

5. Claims 1-4, 6 and 8-11 rejected under 35 U.S.C. 101 because the claimed invention is directed to non-statutory subject matter.
6. Claims 1-4, 6 and 8-11 are directed towards method steps which are not described as requiring computer software or hardware of any type. These steps could be performed by a person using pen and paper outside of an automated or computerized environment as the steps are claimed without embodiment on a computer readable medium for execution by a computer processor and are considered to be directed towards 'functional descriptive material' which by itself is not statutory subject matter.

### ***Claim Objections***

7. Claims 7, 18 and 25 are objected to under 37 CFR 1.75(c) as being in improper form because a multiple dependent claim cannot be dependent up another multiple dependent claim.

The dependency of these claims cannot be properly determined because of the language directed toward dependency. See MPEP § 608.01(n). Accordingly, the claims 7, 18 and 25 have not been further treated on the merits.

***35 USC § 112, 2<sup>nd</sup> paragraph***

8. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

9. Claims 10 and 20-26 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. These claims are considered indefinite because the chain of dependency is incorrect because:

claim 10 cannot be dependent upon itself;  
claim 20 cannot be dependent upon claim 21, a later claim; and,  
claims 21-26 are dependent upon an invalid claim dependency.

***35 USC § 102***

10. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

11. Claims 1-6, 8-17, 19-24 and 26 are rejected under 35 U.S.C. 102(b) as being anticipated by Guineau, III.

12. Guineau teaches the invention (claim 1) as claimed including a method of transferring data, comprising:

completing a first data transfer as executing a memory command for data transfer (e.g., see Figure 12, element 94);

determining that no transfers are being processed as a condition which can and does occur in all systems (e.g., see col. 5, line 48 to col. 6, line 8); and,

releasing a second data transfer for processing as releasing the next data transfer (e.g., see col. 5, line 48 to col. 6, line 37).

As to claim 2, Guineau teaches the second data transfer includes two or more combined transfer requests as buckets which collect either read counts or write counts (e.g., see col. 5, line 48 to col. 6, line 37).

As to claim 3, Guineau teaches determining there are pending transfer requests to coalesce before releasing the combined data transfer as buckets which collect either read counts or write counts (e.g., see col. 5, line 48 to col. 6, line 37).

As to claim 4, Guineau teaches releasing comprises determining that the combined data transfer is an optimum size that corresponds to an address boundary on an input/output device with the optimum size equating to queue depth (e.g., see col. 6, lines 38-60).

As to claim 5, Guineau teaches the address boundary corresponds to a strip boundary corresponding to a redundant array of inexpensive disks, RAID, process (e.g., see col. 4, lines 24-39).

As to claim 6, Guineau teaches storing pending transfer requests and determining that the number of pending transfer requests stored is not greater than a queue depth variable before storing a new transfer request as the queue depth not exceeding a cycle count (e.g., see col. 6, lines 38-60).

As to claim 8, Guineau teaches a second transfer request is stored on the pending list wherein the second transfer request is not addressed adjacent to the first transfer request address as the condition of the second transfer request being either a read request as opposed to a write request of the different requests being for non-adjacent address locations and involve thrashing (e.g., see col. 9, line 50 to col. 10, line 57); and,

wherein a third transfer request is coalesced with the first and second transfer requests into the combined data transfer, the third transfer request being adjacent to the first and second transfer requests (e.g., see col. 9, line 50 to col. 10, line 57).

13. Guineau teaches the invention (claim 9) as claimed including a method of transferring data, comprising:

receiving transfer requests (e.g., see Figure 12, element 94);  
releasing data transfers for processing (e.g., see col. 5, line 48 to col. 6, line 8); and,  
releasing an additional data transfer for processing each time a first data transfer completes (e.g., see col. 5, line 48 to col. 6, line 37)

As to claim 10, Guineau teaches determining there are pending transfer requests, wherein the additional data transfer comprises a combined data transfer that includes two or more transfer requests as buckets which collect either read counts or write counts (e.g., see col. 5, line 48 to col. 6, line 37).

As to claim 11, Guineau teaches determining there are pending transfer requests to coalesce before releasing the combined data transfer as buckets which collect either read counts or write counts (e.g., see col. 5, line 48 to col. 6, line 37).

As to claim 12, Guineau teaches releasing the combined data transfer comprises determining that the combined data transfer is an optimum size that corresponds to an address boundary of an input/output device (e.g., see col. 6, lines 38-60).

14. Guineau teaches the invention (claim 13) as claimed including an article comprising a machine readable medium that stores machine executable instructions for transferring data, the instructions causing a machine to:

release a first data transfer for processing (e.g., see Figure 12);

complete a first data transfer (e.g., see col. 5, line 48 to col. 6, line 8);

determine that no data transfers are being processed (e.g., see col. 5, line 48 to col. 6, line 8); and,

release a second data transfer for processing (e.g., see col. 5, line 48 to col. 6, line 37).

As to claim 14, Guineau teaches instructions causing a machine to combine two or more transfer requests into a combined data transfer, the second data transfer being the combined data transfer as buckets which collect either read counts or write counts (e.g., see col. 5, line 48 to col. 6, line 37).

As to claim 15, Guineau teaches instructions causing a machine to release comprises instructions causing a machine determine that the combined data transfer is an optimum size that corresponds to an address boundary of an input/output device as buckets which collect either read counts or write counts (e.g., see col. 5, line 48 to col. 6, line 37).

As to claim 16, Guineau teaches the address boundary corresponds to a strip boundary corresponding to a redundant array in inexpensive disk process (e.g., see col. 4, lines 24-39).

As to claim 17, Guineau teaches instructions causing a machine to:

store pending transfer requests (e.g., see Figure 12); and,  
determine that the number of pending transfer requests stored is not greater than a queue depth variable before storing a new transfer request processing (e.g., see col. 5, line 48 to col. 6, line 37).

15. Guineau teaches the invention (claim 19) as claimed including an apparatus for coalescing transfer requests, comprising:

- a memory that stores executable instructions (e.g., see Figure 2);
- a processor that executes the instructions to:
  - release a first data transfer for processing (e.g., see Figure 12);
  - complete a first data transfer (e.g., see col. 5, line 48 to col. 6, line 8);
  - determine that no data transfer are being processed (e.g., see col. 5, line 48 to col. 6, line 37); and,
  - release a second data transfer for processing (e.g., see col. 5, line 48 to col. 6, line 37).

As to claim 20, Guineau teaches the processor executes instruction to combine two or more transfer requests into a combined data transfer, the second data transfer being the combined data transfer as buckets which collect either read counts or write counts (e.g., see col. 5, line 48 to col. 6, line 37).

As to claim 21, Guineau teaches the processor executes instructions to determine there are no pending transfer requests to coalesce before releasing the combined data transfer as buckets which collect either read counts or write counts (e.g., see col. 5, line 48 to col. 6, line 37).



As to claim 22, Guineau teaches the releasing comprises determining that the combined data transfer is an optimum size that corresponds to an address boundary of an input/output device with the optimum size equating to queue depth (e.g., see col. 6, lines 38-60).

As to claim 23, Guineau teaches the address boundary corresponds to a strip boundary corresponding to a redundant array of inexpensive disks process (e.g., see col. 4, lines 24-39).

As to claim 24, Guineau teaches the processor executes instructions to store pending transfer requests and determine that a number of stored transfer requests is not greater than a queue depth variable before storing a new transfer request on the pending list as the queue depth not exceeding a cycle count (e.g., see col. 6, lines 38-60).

As to claim 26, Guineau teaches the processor executes instructions to:

store a second transfer request on the pending list, wherein the second transfer request is not addressed adjacent to the first transfer request address as the condition of the second transfer request being either a read request as opposed to a write request of the different requests being for non-adjacent address locations and involve thrashing (e.g., see col. 9, line 50 to col. 10, line 57): and,

coalesce a third transfer request with the first and second transfer requests into the combined data transfer, the third transfer request being adjacent to the first and second transfer requests (e.g., see col. 9, line 50 to col. 10, line 57).

### ***Conclusion***

16. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

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17. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Reba I. Elmore, whose telephone number is (571) 272-4192. The examiner can normally be reached on M-TH from 7:30am to 6:00pm, EST.

If attempts to reach the examiner by telephone are unsuccessful, the art unit supervisor for AU 2187, Donald Sparks, can be reached for general questions concerning this application at (571) 272-4201. Additionally, the official fax phone number for the art unit is (703) 746-7239.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the Tech Center central telephone number is (571) 272-2100.



Reba I. Elmore  
Primary Patent Examiner  
Art Unit 2187

December 8, 2004